OIPE

p.6

```
   2 <110> APPLICANT: MIDOH, Naoki
   3        OKAKURA, Kaoru
   4        MIYAMOTO, Koichi
   5        WATANABE, Manabu
   6        YANAI, Koji
   7        YASUTAKE, Tetsuya
   8        AIHARA, Sato
   9        FUTAMURA, Takafumi
  10        KLEINKAUF, Horst
  11        MURAKAMI, Takeshi
  13 <120> TITLE OF INVENTION: Cyclic Depsipeptide Synthetase And Gene Thereof, And Mass
Production System
  14        For Cyclic Depsipeptide
  16 <130> FILE REFERENCE: 2002-0317A/LC/00144
  18 <140> CURRENT APPLICATION NUMBER: 10/070,387A
C--> 19 <141> CURRENT FILING DATE: 2002-07-22
  21 <150> PRIOR APPLICATION NUMBER: JP 253040/1999
  22 <151> PRIOR FILING DATE: 1999-09-07
  24 <150> PRIOR APPLICATION NUMBER: JP 104291/2000
  25 <151> PRIOR FILING DATE: 2000-04-06
  27 <160> NUMBER OF SEQ ID NOS: 21
  29 <170> SOFTWARE: PatentIn Ver. 2.1
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  33 <212> TYPE: DNA
  34 <213> ORGANISM: Mycelia sterilia
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  38 <222> LOCATION: (1)..(9633)
  39 <223> OTHER INFORMATION: peptide synthetase for PF1022
  41 <220> FEATURE:
  42 <221> NAME/KEY: mat_peptide
  43 <222> LOCATION: (13)..(9630)
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  46 atg tca aac atg gca cca ctc cct acg atg ggc gtt gag cag caa gcc   48
  47 Met Ser Asn Met Ala Pro Leu Pro Thr Met Gly Val Glu Gln Gln Ala
W--> 48              -1  -1           5                10
  50 cta tca ctt tca tgc ccc tta ctc cct cat gac gat gag aaa cac tca   96
  51 Leu Ser Leu Ser Cys Pro Leu Leu Pro His Asp Asp Glu Lys His Ser
W--> 52          15               20               25
  54 gac aac ctt tac gag caa gca act cgg cac ttc ggc ttg agc cga gac  144
  55 Asp Asn Leu Tyr Glu Gln Ala Thr Arg His Phe Gly Leu Ser Arg Asp
W--> 56       30               35               40
  58 aag atc gaa aat gtc tta cca tgt act tcc ttt caa tgt gat gtc ata  192
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ENTERED

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        59 Lys Ile Glu Asn Val Leu Pro Cys Thr Ser Phe Gln Cys Asp Val Ile
W--> 60    45                  50                  55                  60
        62 gat tgc gcc gtc gac gat cgg cgg cat gct atc ggt cac gtc gtc tat   240
        63 Asp Cys Ala Val Asp Asp Arg Arg His Ala Ile Gly His Val Val Tyr
W--> 64                       65                  70                  75
        66 gat atc ccc aat aca gtg gac atc cag cgt tta gcc gca gcc tgg aaa   288
        67 Asp Ile Pro Asn Thr Val Asp Ile Gln Arg Leu Ala Ala Ala Trp Lys
W--> 68                  80                  85                  90
        70 gag gtt gtg cgg cag aca cca atc ttg agg acc ggc atc ttt aca tca   336
        71 Glu Val Val Arg Gln Thr Pro Ile Leu Arg Thr Gly Ile Phe Thr Ser
W--> 72             95                  100                 105
        74 gaa acc ggc gac tct ttt cag atc gtc ttg aaa gaa ggc tgc cta ccg   384
        75 Glu Thr Gly Asp Ser Phe Gln Ile Val Leu Lys Glu Gly Cys Leu Pro
W--> 76        110                 115                 120
        78 tgg atg tac gcg aca tgt ctc ggc atg aag ggg gca gtg ata caa gat   432
        79 Trp Met Tyr Ala Thr Cys Leu Gly Met Lys Gly Ala Val Ile Gln Asp
W--> 80 125                 130                 135                 140
        82 gaa gca gtc gcc gct atg act gga ccg cgt tgc aat cga tat gtc gtc   480
        83 Glu Ala Val Ala Ala Met Thr Gly Pro Arg Cys Asn Arg Tyr Val Val
W--> 84                 145                 150                 155
        86 ctg gag gac ccg agt acg aag caa agg ctg ctc atc tgg aca ttc agc   528
        87 Leu Glu Asp Pro Ser Thr Lys Gln Arg Leu Leu Ile Trp Thr Phe Ser
W--> 88             160                 165                 170
        90 cat gct tta gtg gat tat aca gtc cag gaa cgc atc ctt cag cgg gtt   576
        91 His Ala Leu Val Asp Tyr Thr Val Gln Glu Arg Ile Leu Gln Arg Val
W--> 92             175                 180                 185
        94 ctc aca gta tac gac ggc cgg gac gtc gag tgc cct cgc atc aag gat   624
        95 Leu Thr Val Tyr Asp Gly Arg Asp Val Glu Cys Pro Arg Ile Lys Asp
W--> 96        190                 195                 200
        98 aca gaa cat gtc tct cgg ttt tgg caa caa cac ttt gaa ggc tta gat   672
        99 Thr Glu His Val Ser Arg Phe Trp Gln Gln His Phe Glu Gly Leu Asp
W--> 100 205                 210                 215                 220
       102 gcc tcc gta ttt ccc ctt cta cca tct cac cta act gtg tgc aat ccc   720
       103 Ala Ser Val Phe Pro Leu Leu Pro Ser His Leu Thr Val Cys Asn Pro
W--> 104                 225                 230                 235
       106 aat gcg cgc gca gaa cat cat atc tca tac acg gga cca gtc cag agg   768
       107 Asn Ala Arg Ala Glu His His Ile Ser Tyr Thr Gly Pro Val Gln Arg
W--> 108             240                 245                 250
       110 aag tgg tcc cat aca agt atc tgt cgg gct gca ctc gca gtt ctt cta   816
       111 Lys Trp Ser His Thr Ser Ile Cys Arg Ala Ala Leu Ala Val Leu Leu
W--> 112         255                 260                 265
       114 tct cgc ttt aca cac tct tcg gag gcc ctc ttc ggt gtt gtg aca gaa   864
       115 Ser Arg Phe Thr His Ser Ser Glu Ala Leu Phe Gly Val Val Thr Glu
W--> 116     270                 275                 280
       118 caa tct cac aac tcc gag gac caa aga cgg tca att gat ggc ccc gca   912
       119 Gln Ser His Asn Ser Glu Asp Gln Arg Arg Ser Ile Asp Gly Pro Ala
W--> 120 285                 290                 295                 300
       122 agg aca gta gtg cct atc cgc gtc ctt tgt gcc cca gat caa tat gtg   960
       123 Arg Thr Val Val Pro Ile Arg Val Leu Cys Ala Pro Asp Gln Tyr Val
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RAW SEQUENCE LISTING   DATE: 10/31/2002
PATENT APPLICATION: US/10/070,387A   TIME: 16:03:06

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Output Set: N:\CRF4\10312002\J070387A.raw

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W--> 124                 305                 310                 315
    126 tcg gat gtc att ggg gca atc acc gca cac gaa cac gcc atg cgc ggg    1008
    127 Ser Asp Val Ile Gly Ala Ile Thr Ala His Glu His Ala Met Arg Gly
W--> 128                 320                 325                 330
    130 ttt gag cac gct gga ctt cgc aat atc cgc cgt acc gga gac gac ggg    1056
    131 Phe Glu His Ala Gly Leu Arg Asn Ile Arg Arg Thr Gly Asp Asp Gly
W--> 132         335                 340                 345
    134 tct gct gct tgt gga ttc cag acc gtg cta ctg gtg act gac ggt gat    1104
    135 Ser Ala Ala Cys Gly Phe Gln Thr Val Leu Leu Val Thr Asp Gly Asp
W--> 136         350                 355                 360
    138 gct ccc aag acc cct ggg agt gta ctt cat cga agt gta gaa gaa tcg    1152
    139 Ala Pro Lys Thr Pro Gly Ser Val Leu His Arg Ser Val Glu Glu Ser
W--> 140 365                 370                 375                 380
    142 gat aga ttc atg ccc tgc gct aat cgt gcc ctt ctg ctc gac tgc cag    1200
    143 Asp Arg Phe Met Pro Cys Ala Asn Arg Ala Leu Leu Leu Asp Cys Gln
W--> 144                 385                 390                 395
    146 atg gct ggc aac tcg gca tcc cta gtc gca cga tat gat cat aat gtg    1248
    147 Met Ala Gly Asn Ser Ala Ser Leu Val Ala Arg Tyr Asp His Asn Val
W--> 148                 400                 405                 410
    150 atc gac cca cgc cag atg tct cgc ttc ctg cga cag cta gga tac ctg    1296
    151 Ile Asp Pro Arg Gln Met Ser Arg Phe Leu Arg Gln Leu Gly Tyr Leu
W--> 152         415                 420                 425
    154 atc caa caa ttt cat cat cac gtc gat ctg cct ctg gtc aaa gaa ctg    1344
    155 Ile Gln Gln Phe His His His Val Asp Leu Pro Leu Val Lys Glu Leu
W--> 156         430                 435                 440
    158 gac gtc gtg acg gcg gag gat tgt gcg gaa atc gag aaa tgg aat tca    1392
    159 Asp Val Val Thr Ala Glu Asp Cys Ala Glu Ile Glu Lys Trp Asn Ser
W--> 160 445                 450                 455                 460
    162 gaa cgc cta aca atg caa gac gcc tta atc cac gac acc ata tcc aag    1440
    163 Glu Arg Leu Thr Met Gln Asp Ala Leu Ile His Asp Thr Ile Ser Lys
W--> 164                 465                 470                 475
    166 tgg gct gct ggc gat ccc aac aaa gct gca gtt ttc gct tgg gat ggg    1488
    167 Trp Ala Ala Gly Asp Pro Asn Lys Ala Ala Val Phe Ala Trp Asp Gly
W--> 168                 480                 485                 490
    170 gaa tgg aca tac gcc gag cta gac aac ata tcc tcc cgt ctc gcc gtg    1536
    171 Glu Trp Thr Tyr Ala Glu Leu Asp Asn Ile Ser Ser Arg Leu Ala Val
W--> 172         495                 500                 505
    174 tat atc caa tcc ctg gac ttg aga cca gga caa gca ata ctc cca ctc    1584
    175 Tyr Ile Gln Ser Leu Asp Leu Arg Pro Gly Gln Ala Ile Leu Pro Leu
W--> 176         510                 515                 520
    178 tgc ttc gag aag tca aaa tgg gtc gtc gcc aca att ctc gcc gtc ctc    1632
    179 Cys Phe Glu Lys Ser Lys Trp Val Val Ala Thr Ile Leu Ala Val Leu
W--> 180 525                 530                 535                 540
    182 aaa gtc ggt cgg gca ttc aca ctc atc gac ccg tgc gac ccc tcg gca    1680
    183 Lys Val Gly Arg Ala Phe Thr Leu Ile Asp Pro Cys Asp Pro Ser Ala
W--> 184         545                 550                 555
    186 agg atg gcc cag gtc tgt cag cag acc tcc gcc aca gtc gct ctc acc    1728
    187 Arg Met Ala Gln Val Cys Gln Gln Thr Ser Ala Thr Val Ala Leu Thr
W--> 188                 560                 565                 570
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      190 tcc aaa ctc cac aac acc acc tta cgt tcc gtc gtt tcc cgc tgc att   1776
      191 Ser Lys Leu His Asn Thr Thr Leu Arg Ser Val Val Ser Arg Cys Ile
W--> 192         575                 580                 585
      194 gtg gtc gac gac gac ctc ctt cgg tcc tta ccc cac gcc gat ggc cgc   1824
      195 Val Val Asp Asp Asp Leu Leu Arg Ser Leu Pro His Ala Asp Gly Arg
W--> 196         590                 595                 600
      198 tta aag gcc acc gtg aag cca cag gac ttg gcc tat gtt att ttc aca   1872
      199 Leu Lys Ala Thr Val Lys Pro Gln Asp Leu Ala Tyr Val Ile Phe Thr
W--> 200 605                 610                 615                 620
      202 tct ggc agc aca gga gag ccg aaa ggc atc atg atc gaa cat cgg ggg   1920
      203 Ser Gly Ser Thr Gly Glu Pro Lys Gly Ile Met Ile Glu His Arg Gly
W--> 204                 625                 630                 635
      206 ttc gtg tcg tgt gct atg aaa ttt ggc ccc gcg ctc gga atg gat gag   1968
      207 Phe Val Ser Cys Ala Met Lys Phe Gly Pro Ala Leu Gly Met Asp Glu
W--> 208                 640                 645                 650
      210 cac acg cgc gct ctt caa ttc gcc tca tat gcg ttt ggc gct tgt ctg   2016
      211 His Thr Arg Ala Leu Gln Phe Ala Ser Tyr Ala Phe Gly Ala Cys Leu
W--> 212         655                 660                 665
      214 gta gaa gtt gtg aca gct ctg atg cac ggc ggc tgc gtc tgc atc cct   2064
      215 Val Glu Val Val Thr Ala Leu Met His Gly Gly Cys Val Cys Ile Pro
W--> 216         670                 675                 680
      218 tcc gat gac gat cgc ttg aac aat gta ccg gag ttc atc aaa agg gcc   2112
      219 Ser Asp Asp Asp Arg Leu Asn Asn Val Pro Glu Phe Ile Lys Arg Ala
W--> 220 685                 690                 695                 700
      222 cag gtg aac tgg gtg ata ctc act ccg tcg tat atc ggg aca ttc cag   2160
      223 Gln Val Asn Trp Val Ile Leu Thr Pro Ser Tyr Ile Gly Thr Phe Gln
W--> 224                 705                 710                 715
      226 ccg gaa gat gtc cct gga cta caa aca ctg gta ttg gtt gga gaa cct   2208
      227 Pro Glu Asp Val Pro Gly Leu Gln Thr Leu Val Leu Val Gly Glu Pro
W--> 228                 720                 725                 730
      230 atc tca gcg tct att cgg gat acc tgg gcc tcc cag gtt cga ctc ctg   2256
      231 Ile Ser Ala Ser Ile Arg Asp Thr Trp Ala Ser Gln Val Arg Leu Leu
W--> 232         735                 740                 745
      234 aat gcc tac ggt cag agt gaa agc tca act atg tgc agc gtc acg gaa   2304
      235 Asn Ala Tyr Gly Gln Ser Glu Ser Ser Thr Met Cys Ser Val Thr Glu
W--> 236         750                 755                 760
      238 gtc agc ccg ctc tcc ctc gaa ccg aac aat atc ggt cgg gct gta ggc   2352
      239 Val Ser Pro Leu Ser Leu Glu Pro Asn Asn Ile Gly Arg Ala Val Gly
W--> 240 765                 770                 775                 780
      242 gca cga tcc tgg atc att gat ccc gac gag cct gat cgt ctt gct cca   2400
      243 Ala Arg Ser Trp Ile Ile Asp Pro Asp Glu Pro Asp Arg Leu Ala Pro
W--> 244                 785                 790                 795
      246 att ggc tgc att gga gag cta gtg atc gaa agt ccg ggc att gcg cgc   2448
      247 Ile Gly Cys Ile Gly Glu Leu Val Ile Glu Ser Pro Gly Ile Ala Arg
W--> 248         800                 805                 810
      250 gac tat atc atc gcg ccg ccg ccg gac aag tcc ccc ttt ctc cta gca   2496
      251 Asp Tyr Ile Ile Ala Pro Pro Pro Asp Lys Ser Pro Phe Leu Leu Ala
W--> 252         815                 820                 825
      254 ccc ccg gcc tgg tat cca gcc ggg aaa tta tcc aac gcc ttt aaa ttt   2544
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RAW SEQUENCE LISTING   DATE: 10/31/2002
PATENT APPLICATION: US/10/070,387A   TIME: 16:03:06

Input Set : **N:\jumbos\huge\1007387A.RAW.txt**
Output Set: **N:\CRF4\10312002\J070387A.raw**

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      255 Pro Pro Ala Trp Tyr Pro Ala Gly Lys Leu Ser Asn Ala Phe Lys Phe
W--> 256     830             835             840
      258 tac aag act gga gat ctc gtg cgt tat gga cct gac ggc acc atc gtc   2592
      259 Tyr Lys Thr Gly Asp Leu Val Arg Tyr Gly Pro Asp Gly Thr Ile Val
W--> 260 845             850             855             8,60
      262 tgc ctg gga cgc aaa gat tcg caa gtg aag atc cga ggg cag cgc gta   2640
      263 Cys Leu Gly Arg Lys Asp Ser Gln Val Lys Ile Arg Gly Gln Arg Val
W--> 264             865             870             875
      266 gag atc agc gca gtg gaa gcc agt cta cga cga caa cta cct agt gac   2688
      267 Glu Ile Ser Ala Val Glu Ala Ser Leu Arg Arg Gln Leu Pro Ser Asp
W--> 268             880             885             890
      270 atc atg ccc gtg gcc gaa gct atc aaa cgc tcg gat tcg tca ggc agc   2736
      271 Ile Met Pro Val Ala Glu Ala Ile Lys Arg Ser Asp Ser Ser Gly Ser
W--> 272         895             900             905
      274 aca gtc ttg act gcc ttc ttg ata ggg tca tct aag agc gga gat ggt   2784
      275 Thr Val Leu Thr Ala Phe Leu Ile Gly Ser Ser Lys Ser Gly Asp Gly
W--> 276     910             915             920
      278 aat ggc cac gct tta tct gcg gca gac gcc gtt atc ttg gat cac ggt   2832
      279 Asn Gly His Ala Leu Ser Ala Ala Asp Ala Val Ile Leu Asp His Gly
W--> 280 925             930             935             940
      282 gct acc aac gag ata aac gcg aag ttg cag caa atc ctt ccc cag cat   2880
      283 Ala Thr Asn Glu Ile Asn Ala Lys Leu Gln Gln Ile Leu Pro Gln His
W--> 284             945             950             955
      286 tcc gtt cca tcc tat tat atc cac atg gaa aat ctt cct cga act gcc   2928
      287 Ser Val Pro Ser Tyr Tyr Ile His Met Glu Asn Leu Pro Arg Thr Ala
W--> 288         960             965             970
      290 acc ggc aaa gcg gac agg aaa atg ctt cga tct att gct agc aag cta   2976
      291 Thr Gly Lys Ala Asp Arg Lys Met Leu Arg Ser Ile Ala Ser Lys Leu
W--> 292     975             980             985
      294 ttg ggt gaa ttg tct cag aac gtg aca tct caa ccg att gag aag cac   3024
      295 Leu Gly Glu Leu Ser Gln Asn Val Thr Ser Gln Pro Ile Glu Lys His
W--> 296     990             995             1000
      298 gat gcc cca gca act ggt ata gag gtc aag ctg aag gag ctt tgg ttt   3072
      299 Asp Ala Pro Ala Thr Gly Ile Glu Val Lys Leu Lys Glu Leu Trp Phe
W--> 300 1005            1010            1015            1020
      302 ctg agc ttg aat ctt aat ccc aac tct caa gat gtc gga gcg agt ttc   3120
      303 Leu Ser Leu Asn Leu Asn Pro Asn Ser Gln Asp Val Gly Ala Ser Phe
W--> 304             1025            1030            1035
      306 ttt gac tta ggc gga aat tcc att atc gcc atc aaa atg gta aac atg   3168
      307 Phe Asp Leu Gly Gly Asn Ser Ile Ile Ala Ile Lys Met Val Asn Met
W--> 308         1040            1045            1050
      310 gcg agg tca gct ggg ata gca ctg aag gta tcc gac ata ttc cag aat   3216
      311 Ala Arg Ser Ala Gly Ile Ala Leu Lys Val Ser Asp Ile Phe Gln Asn
W--> 312     1055            1060            1065
      314 ccc acg ctc gcc ggc ctt gtg gat gtc atc ggg cga gac ccg gct ccg   3264
      315 Pro Thr Leu Ala Gly Leu Val Asp Val Ile Gly Arg Asp Pro Ala Pro
W--> 316     1070            1075            1080
      318 tac aac ctc atc cca aca aca gca tac agc gga cct gtt gag cag tcg   3312
      319 Tyr Asn Leu Ile Pro Thr Thr Ala Tyr Ser Gly Pro Val Glu Gln Ser
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 10/31/2002
PATENT APPLICATION: US/10/070,387A   TIME: 16:03:07

Input Set : N:\jumbos\huge\1007387A.RAW.txt
Output Set: N:\CRF4\10312002\J070387A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; N Pos. 6,9
Seq#:6; N Pos. 3,15,18

Invalid Line Length:
The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 13
Seq#:5; Line(s) 1493
Seq#:6; Line(s) 1535
Seq#:7; Line(s) 1577
Seq#:8; Line(s) 1589
Seq#:9; Line(s) 1601
Seq#:10; Line(s) 1613
Seq#:11; Line(s) 1625
Seq#:12; Line(s) 1637
Seq#:13; Line(s) 1649
Seq#:21; Line(s) 1745

RAW SEQUENCE LISTING   DATE: 03/21/2002
PATENT APPLICATION: US/10/070,387   TIME: 14:51:32

Input Set : A:\EP.txt
Output Set: N:\CRF3\03212002\J070387.raw

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      1280 Asp Asp Thr Met Arg Thr Leu Leu Asp Gly Gln Ala Pro Gly His Val
      1281     2130              2135              2140
      1283 Leu Glu Ile Gly Thr Gly Ser Gly Met Val Leu Phe Asn Leu Gly Ala
E--> 1284 (145)              2150              2155              2160
      1286 Gly Leu Gln Ser Tyr Val Gly Leu Glu Pro Ser Arg Ser Ala Ala Thr
      1287              2165              2170              2175
      1289 Phe Val Thr Lys Ala Ile Asn Ser Thr Pro Ala Leu Ala Gly Lys Ala
      1290              2180              2185              2190
      1292 Glu Val His Val Gly Thr Ala Thr Asp Ile Asn Arg Leu Arg Gly Leu
      1293         2195              2200              2205
      1295 Arg Pro Asp Leu Val Val Leu Asn Ser Val Val Gln Tyr Phe Pro Thr
      1296     2210              2215              2220
      1298 Pro Glu Tyr Leu Leu Glu Val Val Glu Ser Leu Val Arg Ile Pro Gly
E--> 1299 (225)              2230              2235              2240
      1301 Val Lys Arg Val Val Phe Gly Asp Ile Arg Ser His Ala Thr Asn Arg
      1302              2245              2250              2255
      1304 His Phe Leu Ala Ala Arg Ala Leu His Ser Leu Gly Ser Lys Ala Thr
      1305              2260              2265              2270
      1307 Lys Asp Ala Ile Arg Gln Lys Met Thr Glu Met Glu Glu Arg Glu Glu
      1308     2275              2280              2285
      1310 Glu Leu Leu Val Asp Pro Ala Phe Phe Thr Ala Leu Leu Gln Gly Gln
      1311     2290              2295              2300
      1313 Leu Ala Asp Arg Ile Lys His Val Glu Ile Leu Pro Lys Asn Met Arg
E--> 1314 (305)              2310              2315              2320
      1316 Ala Thr Asn Glu Leu Ser Ala Tyr Arg Tyr Thr Ala Val Ile His Val
      1317              2325              2330              2335
      1319 Arg Gly Pro Glu Glu Gln Ser Arg Pro Val Tyr Pro Ile Gln Val Asn
      1320              2340              2345              2350
      1322 Asp Trp Ile Asp Phe Gln Ala Ser Arg Ile Asp Arg Arg Ala Leu Leu
      1323     2355              2360              2365
      1325 Arg Leu Leu Gln Arg Ser Ala Asp Ala Ala Thr Val Ala Val Ser Asn
      1326     2370              2375              2380
      1328 Ile Pro Tyr Ser Lys Thr Ile Val Glu Arg His Val Val Glu Ser Leu
E--> 1329 (385)              2390              2395              2400
      1331 Asp Asn Asn Asn Arg Glu Asn Thr His Arg Ala Pro Asp Gly Ala Ala
      1332              2405              2410              2415
      1334 Trp Ile Ser Ala Val Arg Ser Lys Ala Glu Arg Cys Thr Ser Leu Ser
      1335              2420              2425              2430
      1338 Val Thr Asp Leu Val Gln Leu Gly Glu Glu Ala Gly Phe Arg Val Glu
      1339         2435              2440              2445
      1341 Val Ser Ala Ala Arg Gln Trp Ser Gln Ser Gly Ala Leu Asp Ala Val
      1342     2450              2455              2460
      1344 Phe His Arg Tyr Asn Leu Pro Thr Gln Ser Asn Ser Arg Val Leu Ile
E--> 1345 (465)              2470              2475              2480
      1347 Gln Phe Pro Thr Glu Asp Gly Gln Thr Arg Arg Ser Ala Thr Leu Thr
      1348              2485              2490              2495
      1350 Asn Arg Pro Leu Gln Arg Leu Gln Ser Arg Arg Phe Ala Ser Gln Ile
      1351              2500              2505              2510
      1353 Arg Glu Gln Leu Lys Ala Val Leu Pro Ser Tyr Met Ile Pro Ser Arg
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RAW SEQUENCE LISTING   DATE: 03/21/2002
PATENT APPLICATION: US/10/070,387   TIME: 14:51:32

Input Set : A:\EP.txt
Output Set: N:\CRF3\03212002\J070387.raw

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1354        2515              2520              2525
1356 Ile Val Val Ile Asp Gln Met Pro Leu Asn Ala Asn Gly Lys Val Asp
1357    2530              2535              2540
1359 Arg Lys Glu Leu Thr Arg Arg Ala Gln Ile Ala Pro Lys Ser Gln Ala
E--> 1360 (545)            2550              2555              2560
1362 Ala Pro Ala Lys Pro Val Lys Gln Val Asp Pro Phe Val Asn Leu Glu
1363        2565              2570              2575
1365 Ala Ile Leu Cys Glu Glu Phe Ala Glu Val Leu Gly Met Glu Val Gly
1366        2580              2585              2590
1368 Val Asn Asp His Phe Phe Gln Leu Gly Gly His Ser Leu Leu Ala Thr
1369        2595              2600              2605
1371 Lys Leu Val Ala Arg Leu Ser Arg Arg Leu Asn Gly Arg Val Ser Val
1372    2610              2615              2620
1374 Arg Asp Val Phe Asp Gln Pro Val Ile Ser Asp Leu Ala Val Thr Leu
E--> 1375 (625)            2630              2635              2640
1377 Arg Gln Gly Leu Thr Leu Glu Asn Ala Ile Pro Ala Thr Pro Asp Ser
1378        2645              2650              2655
1380 Gly Tyr Trp Glu Gln Thr Met Ser Ala Pro Thr Thr Pro Ser Asp Asp
1381        2660              2665              2670
1383 Met Glu Ala Val Leu Cys Lys Glu Phe Ala Asp Val Leu Gly Val Glu
1384    2675              2680              2685
1386 Val Ser Ala Thr Asp Ser Phe Phe Asp Leu Gly Gly His Ser Leu Met
1387    2690              2695              2700
1389 Ala Thr Lys Leu Ala Ala Arg Ile Ser Arg Arg Leu Asp Val Pro Val
E--> 1390 (705)            2710              2715              2720
1392 Ser Ile Lys Asp Ile Phe Asp His Ser Val Pro Leu Asn Leu Ala Arg
1393        2725              2730              2735
1396 Lys Ile Arg Leu Thr Gln Ala Lys Gly His Glu Ala Thr Asn Gly Val
1397    2740              2745              2750
1399 Gln Ile Ala Asn Asp Ala Pro Phe Gln Leu Ile Ser Val Glu Asp Pro
1400    2755              2760              2765
1402 Glu Ile Phe Val Gln Arg Glu Ile Ala Pro Gln Leu Gln Cys Ser Pro
1403    2770              2775              2780
1405 Glu Thr Ile Leu Asp Val Tyr Pro Ala Thr Gln Met Gln Arg Val Phe
E--> 1406 (785)            2790              2795              2800
1408 Leu Leu Asn Pro Val Thr Gly Lys Pro Arg Ser Pro Thr Pro Phe His
1409        2805              2810              2815
1411 Ile Asp Phe Pro Pro Asp Ala Asp Cys Ala Ser Leu Met Arg Ala Cys
1412    2820              2825              2830
1414 Ala Ser Leu Ala Lys His Phe Asp Ile Phe Arg Thr Val Phe Leu Glu
1415    2835              2840              2845
1417 Ala Arg Gly Glu Leu Tyr Gln Val Val Leu Lys His Val Asp Val Pro
1418    2850              2855              2860
1420 Ile Glu Met Leu Gln Thr Glu Glu Asn Ile Asn Ser Ala Thr Arg Ser
E--> 1421 (865)            2870              2875              2880
1423 Phe Leu Asp Val Asp Ala Glu Lys Pro Ile Arg Leu Gly Gln Pro Leu
1424        2885              2890              2895
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1427        2900              2905              2910
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See page 4

<210> 5
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer for cyclic depsipeptide
synthetase gene

<400> 5
tggacnwsna tgtaygaygg   20

<210> 6
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:primer for cyclic depsipeptide
synthetase gene

<400> 6
gtnggraart aytgnagnac   20

All 'n' must have feature with numeric identifiers <220>-<223>. See item #9 on error summary sheet.

VERIFICATION SUMMARY   DATE: 03/21/2002
PATENT APPLICATION: US/10/070,387   TIME: 14:51:33

Input Set : A:\EP.txt
Output Set: N:\CRF3\03212002\J070387.raw

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L:11 M:270 C: Current Application Number differs, Replaced Current Application No
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:38 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:42 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:46 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:50 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:54 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:58 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:62 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:66 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:70 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:74 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:78 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:82 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:86 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:91 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:95 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:99 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:103 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:107 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:111 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:115 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:120 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:124 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:128 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:132 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:136 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:140 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:144 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:149 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:153 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:157 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:161 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:165 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:169 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:173 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:178 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:182 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:186 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:190 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:194 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:198 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:202 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:207 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:211 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:215 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:219 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:223 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
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US 1007038709P1

Legal Date: 19-11-2002

No.	Doccode	Number of pages
1	M903	2

Total number of pages: 2

Remarks:

Order of re-scan issued on ....